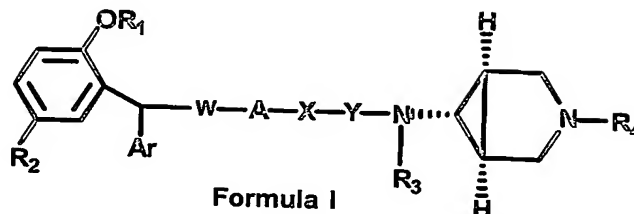


WE CLAIM:

1. Compounds having the structure of Formula I



and their pharmaceutically acceptable salts, pharmaceutically acceptable solvates, esters, enantiomers, diastereomers, N-oxides, polymorphs, prodrugs or metabolites, wherein

Ar represents an aryl or a heteroaryl ring having 1-2 hetero atoms selected from the group consisting of oxygen, sulphur or nitrogen atoms, the aryl or heteroaryl rings may be unsubstituted or substituted by one to three substituents independently selected from lower alkyl (C₁-C₄), trifluoromethyl, methylenedioxy, cyano, hydroxy, halogen (e.g. F, Cl, Br, I), nitro, lower alkoxy (C₁-C₄), amino or lower alkylamino (C₁-C₄);

R₁ represents hydrogen, lower alkyl (C₁-C₄), lower alkenyl (C₁-C₄), lower alkynyl (C₁-C₄), aryl or aralkyl;

R₂ represents hydrogen or lower alkyl (C₁-C₄);

A represents (CH₂)_n or CO, wherein n is an integer in the range of 0 to 4;

W represents (CH₂)_p, wherein p represents 1 to 4;

X represents O, S, NR or no atom, wherein R represents H or lower alkyl (C₁-C₄);

Y represents CHR₅CO, (CH₂)_q or no atom, wherein R₅ represents hydrogen or methyl and q represents 1 to 4; and

R₃ and R₄ are independently selected from hydrogen, straight chain or branched alkyl (C₁-C₄), cycloalkyl, CO₂C(CH₃)₃, optionally substituted aryl or aralkyl.

2. A compound selected from the group consisting of:

3-(2-Methoxy-5-methylphenyl)-3-phenylpropionic acid-(3-benzyl-3-azabicyclo[3.1.0]hex-6-yl-carbamoyl)methyl ester (Compound No. 1)

3-(2-Benzoyloxy-5-methylphenyl)-3-phenylpropionic acid-(3-benzyl-3-azabicyclo[3.1.0]hex-6-yl carbamoyl)methyl ester (Compound No. 2)

N-(3-Azabicyclo[3.1.0]hex-6-yl)-3-(2-hydroxy-5-methylphenyl)-3-phenyl-1-propionic acid (Compound No. 3)

N-(3-Azabicyclo[3.1.0]hex-6-yl)-3-(2-methoxy-5-methylphenyl)-3-phenyl-1-propionamide (Compound No. 4)

3-(2-Methoxy-5-methylphenyl)-3-phenylpropionic acid-4-[(3-azabicyclo[3.1.0]hex-6-yl)-ethoxy carbonylamino]butyl ester (Compound No. 5)

3-(2-Hydroxy-5-methylphenyl)-3-phenylpropionic acid-4-[(3-azabicyclo[3.1.0]hex-6-yl)-ethoxy carbonylamino]butyl ester (Compound No. 6)

3-(2-Methoxy-5-methylphenyl)-3-phenylpropionic acid-(3-azabicyclo[3.1.0]hex-6-yl carbamoyl)methyl ester (Compound No. 7)

3-(2-Hydroxy-5-methylphenyl)-3-phenylpropionic acid-(3-azabicyclo[3.1.0]hex-6-yl carbamoyl)methyl ester (Compound No. 8)

N-[(3-Benzyl-3-azabicyclo[3.1.0]hex-6-yl carbamoyl)-methyl]-3-(2-hydroxy-5-methylphenyl)-3-phenyl propionamide (Compound No. 9)

N-[(3-Benzyl-3-azabicyclo[3.1.0]hex-6-yl carbamoyl)-methyl]-3-(2-methoxy-5-methylphenyl)-3-phenyl propionamide (Compound No. 10)

N-(3-Benzyl-3-azabicyclo[3.1.0]hex-6-yl)-3-(2-hydroxy-5-methylphenyl)-3-phenyl propionamide (Compound No. 11)

3-(2-Methoxy-5-methylphenyl)-3-phenylpropionic acid-4-[(3-benzyl-3-azabicyclo[3.1.0]hex-6-yl)ethoxy carbonylamino]butyl ester (Compound No. 12)

3-(2-Benzyloxy-5-methylphenyl)-3-phenylpropionic acid-4-[(3-benzyl-3-azabicyclo[3.1.0]hex-6-yl)-ethoxy carbonylamino]butyl ester (Compound No. 4)

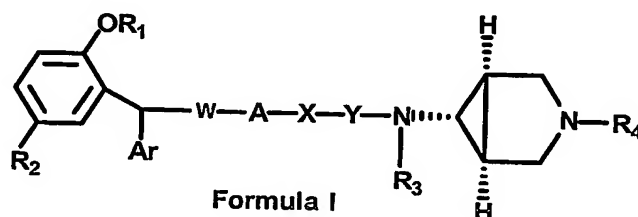
N-(3-Benzyl-3-azabicyclo[3.1.0]-hex-6-yl)-3-(2-methoxy-5-methylphenyl)-3-phenyl propionamide (Compound No. 14)

(R or S)-N-(3-Benzyl-3-azabicyclo[3.1.0]hex-6-yl)-3-[3-(2-methoxy-5-methylphenyl)-3-phenyl propyl]amine (Compound No. 15)

(R or S)-N-(3-Benzyl-3-azabicyclo[3.1.0]hex-6-yl)-3-[3-(2-hydroxy-5-methylphenyl)-3-phenyl propyl]amine (Compound No. 16)

3. A pharmaceutical composition comprising a pharmaceutically effective amount of a compound as defined in claim 1 or 2 optionally together with pharmaceutically acceptable carriers, excipients or diluents.

4. A method for treatment or prophylaxis of an animal or a human suffering from a disease or disorder of the respiratory, urinary and gastrointestinal systems, wherein the disease or disorder is mediated through muscarinic receptors, comprising administering to said animal or human, a therapeutically effective amount of a compound having the structure of Formula I,



and its pharmaceutically acceptable salts, pharmaceutically acceptable solvates, ester, enantiomers, diastereomers, N-oxides, polymorphs, prodrugs or metabolites, wherein

1 Ar represents an aryl or a heteroaryl ring having 1-2 hetero atoms selected from the group
2 consisting of oxygen, sulphur or nitrogen atoms, the aryl or heteroaryl rings may be
3 unsubstituted or substituted by one to three substituents independently selected from lower
4 alkyl (C₁-C₄), trifluoromethyl, methylenedioxy, cyano, hydroxy, halogen (e.g. F, Cl, Br, I),
5 nitro, lower alkoxy (C₁-C₄), amino or lower alkylamino (C₁-C₄);
6

7 R₁ represents hydrogen, lower alkyl (C₁-C₄), lower alkenyl (C₁-C₄), lower alkynyl
8 (C₁-C₄), aryl or aralkyl;
9

10 R₂ represents hydrogen or lower alkyl (C₁-C₄);
11

12 A represents (CH₂)_n or CO, wherein n is an integer in the range of 0 to 4;
13

14 W represents (CH₂)_p, wherein p represents 1 to 4;
15

16 X represents O, S, NR or no atom, wherein R represents H or lower alkyl (C₁-C₄);
17

18 Y represents CHR₅CO, (CH₂)_q or no atom, wherein R₅ represents hydrogen or methyl
19 and q represents 1 to 4; and
20

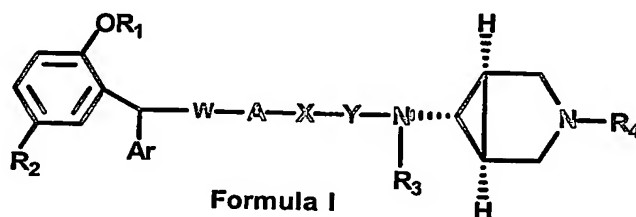
21 R₃ and R₄ are independently selected from hydrogen, straight chain or branched alkyl (C₁-
22 C₄), cycloalkyl, CO₂C(CH₃)₃, optionally substituted aryl or aralkyl.
23

24 5. The method according to claim 4 wherein the disease or disorder is urinary
25 incontinence, lower urinary tract symptoms (LUTS), bronchial asthma, chronic obstructive
26 pulmonary disorders (COPD), pulmonary fibrosis, irritable bowel-syndrome, obesity,
27 diabetes, and gastrointestinal hyperkinesis.
28

29 6. The method for treatment or prophylaxis of an animal or a human suffering from a
30 disease or disorder of the respiratory, urinary and gastrointestinal systems, wherein the
31 disease or disorder is mediated through muscarinic receptors, comprising administering to
32 said animal or human, a therapeutically effective amount of the pharmaceutical
33 composition according to claim 3.
34

7. The method according to claim 6 wherein the disease or disorder is urinary incontinence, lower urinary tract symptoms (LUTS), bronchial asthma, chronic obstructive pulmonary disorders (COPD), pulmonary fibrosis, irritable bowel syndrome, obesity, diabetes and gastrointestinal hyperkinesis.

8. A process of preparing compounds having the structure of Formula I,



and their pharmaceutically acceptable salts, pharmaceutically acceptable solvates, esters, enantiomers, diastereomers, N-oxides, polymorphs, prodrugs or metabolites, wherein

Ar represents an aryl or a heteroaryl ring having 1-2 hetero atoms selected from the group consisting of oxygen, sulphur or nitrogen atoms, the aryl or heteroaryl rings may be unsubstituted or substituted by one to three substituents independently selected from lower alkyl (C₁-C₄), trifluoromethyl, methylenedioxy, cyano, hydroxy, halogen (e.g. F, Cl, Br, I), nitro, lower alkoxy (C₁-C₄), amino or lower alkylamino (C₁-C₄);

R₁ represents hydrogen, lower alkyl (C₁-C₄), lower alkenyl (C₁-C₄), lower alkynyl (C₁-C₄), aryl or aralkyl;

R₂ represents hydrogen or lower alkyl (C₁-C₄);

A represents (CH₂)_n or CO, wherein n is an integer in the range of 0 to 4;

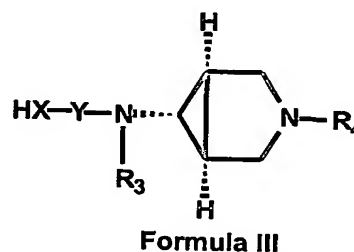
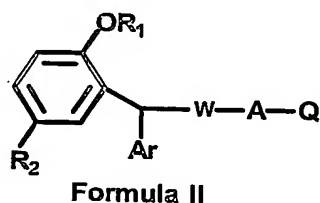
W represents (CH₂)_p, wherein p represents 1 to 4;

X represents O, S, NR or no atom, wherein R represents H or lower alkyl (C₁-C₄);

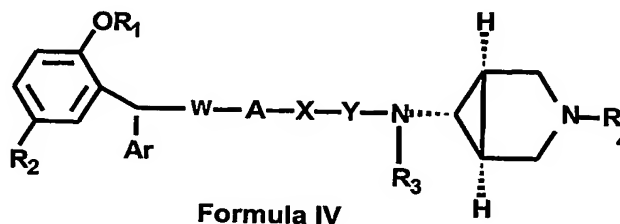
Y represents CHR₅CO, (CH₂)_q or no atom, wherein R₅ represents hydrogen or methyl and q represents 1 to 4; and

R_3 and R_4 are independently selected from hydrogen, straight chain or branched alkyl (C_1 - C_4), cycloalkyl, $CO_2C(CH_3)_3$, optionally substituted aryl or aralkyl, comprising

a) condensing a compound of Formula II with a compound of Formula III,



wherein Q is a leaving group and Ar, R_1 , R_2 , W, A, X, Y, R_3 , R_4 are as defined earlier, to give a compound of Formula IV wherein Ar, R_1 , R_2 , W, A, X, Y, R_3 , R_4 are as defined earlier, and



b) deprotecting the compound of Formula IV in the presence of a deprotecting agent to give compounds of Formula I.

9. The process according to claim 8 wherein the leaving group Q is selected from the group consisting of hydroxy, amino, O-tosyl, O-mestyl and halogen.

10. The process according to claim 8 wherein the reaction of a compound of Formula II with a compound of Formula III to give compounds of Formula IV is carried out in the presence of a condensing agent selected from the group consisting of 1-(3-dimethylamino propyl)-3-ethyl-carbodiimide hydrochloride and 1,8-diazabicyclo[5.4.0]undec-7-ene.

11. The process according to claim 8 wherein the reaction of a compound of Formula II with a compound of Formula III to give compounds of Formula IV is carried out in a

1 solvent selected from the group consisting of dimethylformamide, dimethylsulphoxide,
2 toluene, xylene, methanol and dichloromethane.

3

4 12. The process according to claim 8 wherein the reaction of a compound of Formula
5 II with a compound of Formula III to give compounds of Formula IV is carried out in the
6 presence of a base selected from the group consisting of N-methyl morpholine, N-methyl-
7 2-pyrrolidinone (NMP), sodium carbonate, potassium carbonate, triethylamine, potassium
8 iodide and diisopropylamine.

9

10 13. The process according to claim 8 wherein the reaction of a compound of Formula
11 II with a compound of Formula III to give compounds of formula IV is carried out at a
12 temperature ranging from about 0°C to about 140°C.

13

14 14. The process according to claim 8 wherein the deprotection of a compound of
15 Formula IV to give compounds of Formula I is carried out in the presence of a
16 deprotecting agent selected from the group consisting of palladium on carbon,
17 trifluoroacetic acid and hydrochloric acid.